

Appln. No. 10/018,210
Amendment dated September 15, 2005
Reply to Office Action of June 15, 2005

Amendments to the Claims:

Please cancel claim 2 and amend claims 1 and 5 as follows.
The following listing of claims will replace all prior versions,
and listings, of claims in the application.

Listing of Claims:

Claim 1 (Currently Amended). An optical-signal
autocorrelation-bit-error detection apparatus using an optical
branch system, comprising:

optical branch means for branching an optical signal to be
5 measured modulated by a pulse signal and outputting branched
optical signals as first and second optical pulse signals;

first light-to-electricity conversion means for converting
the first optical pulse signal supplied from said optical branch
means into a first electrical signal and outputting the first
10 electrical signal;

second light-to-electricity conversion means for converting
the second optical pulse signal supplied from said optical branch
means into a second electrical signal and outputting the second
electrical signal;

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15 first decision means for outputting a reference pulse signal
in accordance with a comparison result between the voltage of the
first electrical signal supplied from said first
light-to-electricity conversion means and a reference-signal
generation voltage set to an approximate median of the amplitude
20 of said first electrical signal;

second decision means for outputting a measuring pulse
signal in accordance with a comparison result between the voltage
of the second electrical signal supplied from said second
light-to-electricity conversion means and a noise detection
25 voltage set to an optional level slid from an approximate median
of the amplitude of said second electrical signal to [[the]] a
mark side or space side; and

bit error detection means for detecting an autocorrelation
bit error of said optical signal to be measured in accordance
30 with a comparison result between the reference pulse signal
supplied from said first decision means and the measuring pulse
signal supplied from said second decision means,

wherein said optical branch means outputs said first and
second optical pulse signals by setting magnitudes of the signals
35 to m:n (m > n) where m corresponds to the magnitude of said
second optical pulse signal and n corresponds to the magnitude of

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40 the first optical pulse signal so that the magnitude of the
second optical pulse signal is greater than that of the first
optical pulse signal when optically branching said optical signal
to be measured into said first optical pulse signal at the
reference side and into said second optical pulse signal at the
noise detection side.

Claim 2 (Cancelled).

Claim 3 (Previously Presented). The optical-signal
autocorrelation-bit-error detection apparatus according to claim
1, wherein:

5 said optical branch means branches said optical signal to be
measured into N optical signals and outputs them as first,
second, third, ..., and Nth (N is an integer of 3 or more)
optical pulse signals,

said autocorrelation-bit-error detection apparatus further
comprises:

10 third to Nth light-to-electricity conversion means for
converting said third to Nth pulse signals supplied from said
optical branch means into third to Nth electrical signals and
outputting the third to Nth electrical signals, and

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third to Nth decision means for outputting second to Nth
15 measuring pulse signals in accordance with comparison results
between voltages of said third to Nth electrical signals supplied
from said third to Nth light-to-electricity conversion means and
noise detection voltages set to optional levels slid from
approximate medians of amplitudes of said third to Nth electrical
20 signals to the mark side or space side, and

wherein said bit error detection means detects the
autocorrelation bit error of said optical signal to be measured
in accordance with comparison results between the reference
signal supplied from said first decision means and said second to
25 Nth measuring pulse signals supplied from said second to Nth
decision means.

Claim 4 (Previously Presented). The optical-signal
autocorrelation-bit-error detection apparatus using an optical
branch system according to claim 1, wherein it is made possible
to measure the autocorrelation bit error rate of said optical
5 signal to be measured in accordance with a counted value of
autocorrelation bit errors of said optical signal to be measured
supplied from said bit error detection means and a counted value
of clock signals.

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Claim 5 (Currently Amended). An optical-signal autocorrelation-bit-error detection method using an optical branch system, comprising the steps of:

branching an optical signal to be measured modulated by a pulse signal and outputting branched optical signals as first and second optical pulse signals;

converting said first optical pulse signal into a first electrical signal and outputting the first electrical signal;

converting said second optical pulse signal into a second electrical signal and outputting the second electrical signal;

outputting a reference pulse signal in accordance with a comparison result between the voltage of said first electrical signal and a reference-signal generation voltage set to an approximate median of the amplitude of said first electrical signal;

outputting a measuring pulse signal in accordance with a comparison result between the voltage of said second electrical signal and a noise detection voltage set to an optional level slid from an approximate median of the amplitude of said second electrical signal to [[the]] a mark side or space side; and

detecting the autocorrelation bit error of said optical signal to be measured in accordance with a comparison result

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between said reference pulse signal and said measuring pulse signal,

- 25 wherein said branching step outputs said first and second
optical pulse signals by setting magnitudes of the signals to m:n
(m > n) where m corresponds to the magnitude of the second
optical pulse signal and n corresponds to the magnitude of the
first optical pulse signal so that the magnitude of the second
30 optical pulse signal is greater than the magnitude of the first
optical pulse signal when optically branching the optical signal
to be measured into the first optical pulse signal at the
reference side and into the second optical pulse signal at the
noise detection side.

Claim 6 (Original). The optical-signal autocorrelation-bit-error detection method using an optical branch system according to claim 5, further comprising the step of:

- 5 measuring the autocorrelation bit error rate of said optical signal to be measured in accordance with a counted value of autocorrelation bit errors of said optical signal to be measured and a counted value of clock signals.